

Amendments to the Drawings:

The attached sheet of drawings includes new Fig. 7, which illustrates a second element 15 arranged in washer 10.

Attachment: Replacement Sheet

REMARKS

Reconsideration and allowance of the above-identified application are respectfully requested. Claims 1, 5-12 and 18-27 are now pending, wherein claim 1 is amended, claims 2-4 and 13-17 are canceled, and claims 18-27 are new.

The drawings are objected to as not illustrating the second element recited in claims 11 and 17. Applicants submit herewith new Figure 7, as well as corresponding amendments to the specification, to illustrate this second element. Accordingly, withdrawal of this objection is respectfully requested.

Claim 15 is rejected under 35 U.S.C. § 112, first paragraph. Claim 15 has been canceled, thereby rendering this rejection moot.

Claims 1, 2 and 13 are rejected under 35 U.S.C. § 112, second paragraph for indefiniteness. Claim 1 is amended to address the indefiniteness rejection. Claims 2 and 13 are canceled, thereby rendering the rejection of these claims moot. Accordingly, withdrawal of this ground of rejection is respectfully requested.

Claims 13-17 are rejected under 35 U.S.C. § 112, second paragraph and § 101 as allegedly reciting a product and process in the same claim. Although

Applicants respectfully traverse this rejection, in the interest of expediting prosecution, these claims have been canceled.

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,975,643 to Buchwald ("Buchwald"). Claims 2-4 and 8 are rejected under 35 U.S.C. § 103(a) as being obvious in view of the combination of Buchwald and U.S. Patent No. 5,898,298 to Brandsma ("Brandsma"). These grounds of rejection are respectfully traversed.

Claim 1 has been amended to include the elements of now canceled claim 4. The combination of Buchwald and Brandsma does not render Applicants' claim 1 obvious because the combination does not disclose or suggest a sensor that comprises "a first inductor of the sensor" and "at least one other element which is made of piezoelectric or magnetostrictive material, and which comprises a second impedance connected in parallel with a second inductor to form an electromagnetic resonating circuit of the sensor."

Buchwald discloses a micro-positioning device 10 that utilizes a magnetostrictive transducer¹. Micro-positioning device 10 includes an elongated rod 12 formed of a magnetostrictive material². Strain sensors 28 and 38, which are disclosed as quartz resonant type sensors, are mounted in cavities formed in

¹ Col. 2, lines 41-43 and Figure 1.

² Col. 2, lines 50-53.

elongated rod 12, and when a drive current is passed through magnetic coil 16, the rod is elongated and a strain is caused in quartz sensor 28³.

The Office Action relies upon inductor 16 of Buchwald as corresponding to the first inductor of Applicants' claim 1. Applicants' claim 1 recites a *sensor that comprises* a first inductor. In contrast, Buchwald does not disclose that inductor 16 is part of a sensor, but instead that it is merely part of micro-positioning device 10. In fact, the only sensors disclosed by Buchwald are quartz sensors 28 and 38, and Buchwald does not disclose that these sensors include inductor 16.

The Office Action relies upon sensor 28 of Buchwald as corresponding to the at least one other element that comprises a second impedance and a second inductor of Applicants' claim 1. Apart from mentioning that sensor 28 is a quartz sensor, Buchwald does not disclose further details of this sensor. Therefore, Buchwald does not disclose that sensor 28 includes a second impedance and a second inductor, as does the sensor recited in Applicants' claim 1.

The Office Action recognizes that Buchwald does not disclose a sensor that comprises a second impedance connected in parallel with a second inductor to form a resonance circuit. Instead, the Office Action states that Applicant

³ Col. 3, lines 5-28.

discloses that a magnetostrictive element itself possesses a mechanical resonance and an inherent capacitance. It appears that the Office Action is referring to paragraph 0038 of Applicants' specification which discloses that a *piezoelectric* element has these properties. However, contrary to the statement in the Office Action, Applicants' specification does not state that a *magnetostrictive* element has such properties. Therefore, the Office Action's reliance on Applicants' specification does not support the reasoning of this rejection.

Nevertheless, the Office Action states that a magnetostrictive element itself possesses a mechanical resonance and an inherent capacitance. If this statement in paragraph 10 of the Office Action is intended as "Official Notice" that a magnetostrictive elements possesses a mechanical resonance and an inherent capacitance, Applicants respectfully traverse this Official Notice and request that the next Office Action include a prior art reference disclosing such.

Moreover, Buchwald discloses that rod 12 is magnetostrictive, but does not disclose that it includes a second impedance connected in parallel with a second inductor, or that it is part of sensor 28. The Office Action states that a parallel resonator is an alternative to a series resonator that is commonly known and used to model properties of a crystal resonator, and then concludes that it would

be obvious to modify Buchwald to include a parallel resonator because it is more efficient than the one disclosed by Buchwald.

Buchwald, however, does not disclose a sensor that includes a series resonator or, as recognized by the Office Action, a parallel resonator. As such, the rejection of Applicants' claim 1 does not include a prior art reference that discloses or suggests all of the elements of Applicants' claim 1, as required to establish a *prima facie* case of obviousness⁴. Furthermore, the Office Action has not provided any evidence to establish that a parallel resonator is more efficient than a series resonator, or that there is any need in the system of Buchwald for an allegedly more efficient parallel resonator. Therefore, the Office Action has not provided sufficient motivation for one of ordinary skill in the art to modify Buchwald in the manner described in the Office Action.

It is noted that the rejection Applicants' claim 4 only discusses Buchwald and, apart from the header of the rejection, does not indicate that Brandsma has any relevance to this claim. Nevertheless, it is respectfully submitted Brandsma does not remedy the above-identified deficiencies of Buchwald with respect to Applicants' claim 1, which incorporates the elements of now canceled claim 4.

⁴ M.P.E.P. § 2143.

Because Buchwald and Brandsma each do not disclose or suggest a sensor that includes a first inductor and at least one other element arranged in the manner recited in Applicants' claim 1, and the Office Action has not provided sufficient motivation to modify Buchwald to result in the sensor of Applicants' claim 1, the combination cannot render this claim obvious.

Claim 8 is patentably distinguished over the combination of Buchwald and Brandsma at least by virtue of its dependency from claim 1.

Claims 5 and 6 are rejected under 35 U.S.C. § 103(a) as being obvious in view of the combination of Buchwald, Brandsma and U.S. Patent No. 5,192,938 to Ort ("Ort"). Claims 7 and 9-12 are rejected under 35 U.S.C. § 103(a) as being obvious in view of the combination of Buchwald, Ort and U.S. Patent No. 3,945,704 to Kraus et al. ("Kraus"). Claims 13 and 15-17 are rejected under 35 U.S.C. § 103(a) as being obvious in view of the combination of Buchwald and Kraus. Claim 14 is rejected under 35 U.S.C. § 103(a) as being obvious in view of Buchwald, Kraus and Brandsma.

Claims 5-7 and 9-12 depend from claim 1, and it is respectfully submitted that the additional patents cited against these dependent claims does not overcome the above-identified deficiencies of the combination of Buchwald and

Brandsma. Accordingly, withdrawal of the rejections of claims 5-12 is respectfully requested.

Claims 13-17 have been canceled, thereby rendering the rejection of these claims moot.

New claim 18 is patentably distinguishable over the current grounds of rejection at least by virtue of its dependency from claim 1.


New claim 19 recites similar elements to those discussed above with regard to claim 1, and is patentably distinguishable over the current grounds of rejection for similar reasons. New claims 20-27 are patentably distinguishable over the current grounds of rejection at least by virtue of their dependency from claim 19.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #101619.55842US).

Respectfully submitted,

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